

Remarks/Arguments

The Office Action dated June 27, 2005 has been received and carefully studied.

The Examiner rejects Claim 1 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention. Specifically, the Examiner suggests that the term "N95 performance and other high performance standards in air permeability" is a relative term. The claim has been amended to eliminate this phrase.

The Examiner rejects claims 1-3, and 12 under 35 U.S.C. §102(b) as being anticipated by Haber et al. (U.S. Patent No. 4,790,307). The Examiner states that Haber discloses a respiratory mask having an outside mask; an inside mask; at least one mask spacer inserted between the filter layers of the inside mask to generate space between the different filter layers of the inside mask; at least one mask spacer inserted between the filter layers of the outside mask to generate space between the different filter layers of the outside mask layer, so that when air is discharged, the spacer together with the filter layers provide a pumping effect. The Examiner admits that Haber does not disclose a pumping effect, but notes that the presence of the structural elements makes the invention of Haber fully capable of performing the recited function.

Applicant respectfully disagrees. Although Haber defines a containment envelope, this is significantly different than the spacer chamber defined and required in the present application. To successfully create the pumping action specified in the claim, and as is illustrated in Figures 3, 4, 6 and 8, the adjacent filters layers must be joined

together along their edges so as to create enclosed volumes between adjacent filter layers. The present invention places the spacers in one or more of these enclosed volumes so as to create a spacer chamber between those filter layers. Without these spacers, static would cause the layers to stick together (as can be seen between filter layers 1 and 2 in Figure 3b). The presence of a spacer chamber enables the pumping action described in the specification and in the claims. Specifically, because the filter layers are permeable, increasing the volume of the spacer chamber suddenly creates a pressure differential between the spacer chamber and its exterior such that suction is created which takes air into the chamber via the filter layers. When a person breathes in, the volume of the spacer chamber increases, due to the fact that the innermost filter layer is pulled toward the wearer's mouth. This increase in volume creates a corresponding decrease in air pressure within the chamber, causing air to be sucked into the chamber from the surroundings. Conversely, decreasing the volume of the spacer chamber forces air out through the filter layers by increasing the pressure in the spacer chamber. When the wearer exhales, the innermost filter layer is pushed away from the wearer, thereby decreasing the volume of the spacer chamber. This decrease in volume creates a corresponding increase in air pressure, which forces the air within the chamber to be expelled toward the surroundings. To operate correctly, the spacers must create a suitably sized spacer chamber, i.e. the filter layers must be sufficiently separated, and the filter layers must create an enclosed volume. Haber does not disclose any dimensions for the envelope, nor suggest that thickness is an important consideration. In fact, Haber discloses that the containment

envelope should be "pressed between the fingers of the wearer", and ruptured. Column 3, lines 12-13. The fluid then saturates the surrounding fibrous materials. This fluid saturation would further serve to destroy the spacing chamber, as the fluid would likely cause the opposing layers to stick together.

In further support of the fact that Haber does not disclose or suggest a spacing chamber capable of pumping effect, one of the alternate embodiments suggests that the hollow compartment need not be enclosed. Specifically, Haber recommends "the hollow compartment 6 formed by the attachment of the upper mask layer 4 to the lower mask layer 2, may be opened along one side thereof." Column 4, lines 39-42. This embodiment is completely inconsistent with the requirement of the present invention that the volume be enclosed. Furthermore, an open edge would not permit the necessary pumping action to take place.

In view of the above, claim 1 has been amended to better identify the invention. Amended claim 1 requires that the edges of the filter layers be joined in such a manner so as to create at least two enclosed volumes between adjacent filter layers. The invention of Haber does not disclose or suggest this arrangement. In fact, Haber specifically states that the containment packet or envelope 12 is located "within the compartment 6 between the bottom and top layers". The figures also illustrate that the outer edges of the containment envelope and the outer edges of the pads do not join together with the outer edges of the top and bottom layers. Thus, Haber does not define at least two enclosed volumes located between adjacent filter layers.

The Examiner rejects claims 4-10 under 35 U.S.C. §103(a) as being unpatentable over Haber. The Examiner states that

the shape of the spacer can be arrived at though mere routine experimentation and observation. With the above described amendment to independent claim 1, these dependent claims are believe to be in condition for allowance.

The Examiner rejects claim 13 under 35 U.S.C. §103(a) as being unpatentable over Haber in view of Walker (U.S. Patent No. 5,794,276). The Examiner states that Walker teaches a neck curtain used in combination with a face mask. With the above described amendment to independent claim 1, this dependent claim is believed to be in condition for allowance.

Reconsideration and allowance are respectfully requested in view of the foregoing.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'Robert Frame', written over a horizontal line.

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